VIII. Setting Water Quality Goals for the Deep River/ Turkey Creek Watershed

Principles of Watershed Management

Although the watershed planning efforts in the Deep River/ Turkey Creek Watershed grew out of community concerns for Lake George, stakeholders involved in the development of this watershed plan realize that initiating water quality improvements in Lake George will require a significant investment of time and resources throughout the larger Deep River/ Turkey Creek watershed.

Generally speaking, watershed management approaches can be divided into two categories: the "quick-fix" approach or “long-term management”. The "quick fix" approach to watershed management addresses short-term "solutions," such as the application of aquatic herbicides to quickly kill unwanted algae. Such chemical applications can go on year after year, becoming increasingly less effective if the underlying causes of the algal growth are ignored. The "quick fix" approach treats the symptoms of water quality problems, but fails to address the causes and sources of the problems.

Long-term watershed management considers all of the factors affecting a watershed and sets a higher priority on finding comprehensive, lasting solutions to water quality problems. As a result, high quality, financially efficient management projects take time and begin with long-range planning, such as the efforts documented in this plan. In some cases, immediate stream or lake restoration practices are also necessary; however, good management planning will ensure that such immediate restoration efforts are followed by appropriate long-term management practices.

Determining Water Quality Priorities, Goals, and Targets

Based upon these principles of watershed management, a mix of preventive actions and immediate restoration efforts are included in the recommendations for the Deep River/ Turkey Creek watershed. On April 23, 2002, the Steering Committee for the Deep River/ Turkey Creek Watershed Plan held a public meeting to discuss water quality improvement and protection priorities, goals, and targets in the Hobart City Council Chambers.

Table 8-1 lists the water quality improvement and protection priorities, goals, and targets as decided upon by the stakeholders at this public meeting. Each goal includes a statement of desired end-point condition or target as compared to present day conditions, and a time frame for when stakeholders expect the target to be met.

Table 8-1: Water Quality Improvement and Protection Goals for the Deep River/ Turkey Creek Watershed

1. Minimize the deposition of new sediments into Lake George

- Reduce sedimentation in Lake George by 75% over the next 5 years via BMP treatment train principle for both urban/ rural areas

2. Improve water quality in Deep River/ Turkey Creek watersheds

- Reduce sediment, nutrient, and E.coli loads in DR/ TC upstream of Lake George by 15% over the next 5 years
- Improve in-stream habitat in DR/ TC by 15% over the next 5 years

3. Improve education about water quality problems/ concerns

- Educate 75% of Lakeshore residents about watershed protection efforts for Lake George over the next 2 years
- Educate 75% of community officials in the DR/ TC watersheds about watershed protection efforts for Lake George over the next 2 years

4. Eliminate illegal discharges

- Conduct dry weather screening/ surveys of 100% of MS4 outfalls into Lake George/ tributaries over the next 5 years – Hobart
- Conduct dry weather screening/ surveys of 100% of MS4 outfalls in DR/ TC watersheds over the next 5 years – All Designated SW Phase II Entities
- Conduct dry weather screening/ surveys of 25% of outfalls in non-MS4 areas in DR/ TC watersheds over the next 5 years

5. Eliminate Failing septic systems

- Survey 30% of non-sewered areas to identify failing septic systems within municipal jurisdictions over the next 5 years
- Implement appropriate community solutions for 10% of problematic septic systems over the next 5 years

6. Promote consistency among communities developing stormwater management programs

- Develop joint stormwater/ water quality education programs w/ communities in DR/ TC watershed over the next 5 years
- Develop consistent stormwater ordinances w/ communities in DR/ TC watershed over the next 5 years

Management Recommendations for the Deep River/ Turkey Creek Watershed

As a result of the priorities, goals and targets decided upon by watershed stakeholders, a "toolbox" of structural and non-structural management practices or alternatives were developed by the consulting team and presented to Steering Committee for the Deep River/ Turkey Creek Watershed Plan at a public meeting held on May 21, 2002 in the City of Hobart's Council Chambers.

The Steering Committee discussed the pros, cons, and estimated costs of each of the management practices in order to select the preferred alternatives they felt were appropriate for achieving their water quality improvement goals. The stakeholders discussed the necessary sequence of tasks to ensure cohesive implementation of the selected management practices and identified approximate timeframes during which each task should be implemented or completed. In addition, stakeholders identified additional management practices that they recommended for adoption in the recommendations. The final list of preferred management practices, in order of priority and as selected by watershed stakeholders, is included in **Table 8-2**.

The final recommendations were compiled and organized into the content of the watershed plan and presented in this "Final Draft" version to the Hobart City Council and the public on June 19, 2002.

Measuring Progress

In order to ensure that progress is being made towards accomplishing the water quality improvement goals outlined in this Section, the Steering Committee selected specific indicators that they could use to measure the overall success of this plan. The milestones and indicators selected are summarized in **Table 8-3**.

Plan Evaluation

The steering committee will review and approve of any changes or updates to the Deep River/ Turkey Creek Watershed Management Plan on as needed, but will complete a thorough review at least every two years. This plan is intended to be a living document that will grown and change over the years. A copy will always be available for view at the Town Hall in Hobart, Indiana. Any questions regarding this plan should be directed to Ms. Denarie Kane, Director of Development for the City of Hobart (219-942-6112), as Ms. Kane will keep all future records and documents associated with this plan.

Table 8-2: Management Practices/ Alternatives for the Deep River/ Turkey Creek Watershed

Goal # 1:	**Minimize the deposition of new sediments into Lake George - Reduce sedimentation in Lake George by 75% over the next 5 years via treatment train principle for both urban/ rural areas**	**Target Location(s) for Implementation** (Municipal Jurisdictions)	**Estimated Cost of Implementation** (Each $ represents an estimated cost of $10, 000)	**Responsible Party(s)**	**Implementation Schedule** (Years)
Strategies for Achieving Goal # 1:	• Establish a local water quality monitoring program to provide baseline and trends data regarding the introduction of sediment and pollutants into Lake George. The monitoring program will also provide critical information for measuring the success of upstream and Lake water quality improvements. The program should also include TSI monitoring of Lake George in conjunction w/ IDEM's LMP.	City of Hobart, Indiana	$$$	City of Hobart, Indiana	2003-2007
	• Establish local stormwater utility. Stormwater utilities are an effective alternative to traditional financing for stormwater management. Stormwater utilities initiate user fees that provide community financing for stormwater runoff that causes *pollution* and *flooding*.	City of Hobart, Indiana	$$$$	City of Hobart, Indiana	2007
	• Establish local Stormwater Management Program that includes authority for managing an erosion sediment control program via ordinance or regulatory program. Program will need to include site plan review procedures, site inspection/ enforcement procedures, and the ability to enforce stop work orders. May also include public input/ community policing components	City of Hobart, Indiana	$$$$$	City of Hobart, Indiana	2003
	• Update local zoning/ subdivision control ordinances to require lake/ stream setbacks; minimize curb requirements near streams to promote over land flow, and require additional (native) landscaping requirements along streams/ lakes in new/ redevelopment	City of Hobart, Indiana	$$	City of Hobart, Indiana	2003

	• Revise Comprehensive Plan to include recommended principles/ strategies from Deep River/ Turkey Creek Watershed Management Plan as a foundation for long-range planning/ land use decision making: 1. Stream/ Lake Setbacks 2. Floodplain Protection/ Management 3. Wetland/ Tree Conservation 4. Minimizing Impervious Surfaces 5. Linear Parks/ Open Space Preservation 6. Greenway and Riparian Planning 7. Parking Lot and Native Landscaping Design 8. Conservation Design 9. Planned Unit Development 10. Infill Development	City of Hobart, Indiana	$$	City of Hobart, Indiana	2004
	• Establish Education Program for Developers: 1. Produce materials to inform the development community about anticipated changes to erosion and sediment control (ESC) requirements. 2. Produce educational materials regarding the importance of erosion/ sediment controls for protecting community investments in Lake George. 3. Produce guidance recommending proven/ recommended best management practices (BMPs) and describing proper installation methods/ design specifications	City of Hobart, Indiana Lake County SWCD Lake County Surveyor's Office	$	City of Hobart, Indiana Lake County SWCD	2003
	• Install BMP demonstration projects as an educational tool for the development community (Phase III Lakefront Development near City Hall), using techniques such as catch basin inserts, retrofitting SW pond for quality controls, constructed wetland, bio-filter, etc)	City of Hobart, Indiana Lake County SWCD Lake County Surveyor's Office	$$$	City of Hobart, Indiana Lake County SWCD	2004

	• Construct streambank/ shoreline bioengineering projects in conjunction w/ LCSO's regional detention projects and retention/ infiltration practices to slow down stream velocities: 1. Jerry Pavese Park – Shoreline Stabilization 2. Fred Rose Park – Shoreline Stabilization 3. Hobart Prairie Grove – Streambank Stabilization 4. Deep River @ Deep River County Park – Streambank Stabilization 5. Conduct lake/ stream resident survey to ID additional problem areas in need of restoration	City of Hobart, Indiana Lake County SWCD Lake County Parks Department	$$$$$ per section; overall estimate of $500,000 to $1,000,000 for shoreline restoration	City of Hobart, Indiana Lake County SWCD Lake County Parks Department	2003-2007
	• Construct boardwalks, fishing piers, and natural shorelines in all parks/ recreational fishing locations to protect against significant existing shoreline erosion problems from over use. Existing comprehensive plan identifies park areas as being under served/ overused.	City of Hobart, Indiana	$$$	City of Hobart, Indiana	2003-2007
	• Provide recreational season boat/ paddleboat rental access to public/ fishing community to discourage shoreline fishing/ shoreline erosion.	City of Hobart, Indiana	$	City of Hobart, Indiana	2004-2007
	• Discourage use of turf grasses/ mowing on all public and private lakeside parcels. Use native plants/ bushes along shoreline that provide more extensive root structure and protection against erosion/ wave action.	City of Hobart, Indiana	$	City of Hobart, Indiana	2003
	• Support LC SWCD on Ag issues, such as Core 4: 1. Filters/ Buffers, 2. Reduced Tillage/ Conservation tillage 3. Nutrient, Pest, Manure management 4. Fencing livestock out of streams/lake and installation of alternate supplies of water 5. Water/ sediment control basins	City of Hobart, Indiana Lake County SWCD	$$$$	City of Hobart, Indiana Lake County SWCD	2003
	• Support LC SWCD in storm water inlet stenciling project throughout watershed (Entire Lake George watershed; Deep River/ Turkey Creek watershed)	City of Hobart, Indiana Lake County SWCD	$	City of Hobart, Indiana Lake County SWCD	2004-2007

	• Encourage development of NFP Lake Association w/ goal of improving water quality in Lake George: 1. Establish a new entity with the ability to apply for/ receive grant funds for addressing water quality problems 2. Encourage "no wake" zone to minimize wave erosion of shoreline area with problems	City of Hobart, Indiana Hobart Parks Department	$	City of Hobart, Indiana Hobart Parks Department	2004
	• Establish Lake Resident Education Program: 1. Conduct series of lake resident surveys gauging interest and support of lake improvement efforts/ water quality improvements 2. Create brochure and website to educate residents about the benefits of natural shorelines/ native plants and landscapes to prevent shoreline erosion 3. Conduct hands-on workshop to teach easy bioengineering technologies to lake property owners by installing demonstration practice on public property, such as city/ county park	City of Hobart, Indiana Lake County SWCD	$ - $$	City of Hobart, Indiana Lake County SWCD	2004
	• Encourage partnerships w/ neighboring communities to: 1. Ensure consistency in the development of storm water management programs 2. Promote development of consistent erosion and sediment control ordinances 3. Encourage consistency in BMPs required during construction activities 4. Encourage consistency in education and outreach efforts for all communities in watershed	City of Hobart, Indiana Lake County SWCD	$	City of Hobart, Indiana Lake County SWCD	2005
	• Work w/ Hobart DPW and establish partnerships with the County Highway Department and INDOT to encourage bridge retrofitting of storm water outlets where discharges are causing erosion: 1. Implement construction design standards for new/ rehabbed bridges 2. Apply for pollution prevention grants to pay for/ cost-share for retrofitting 3. Educate City and County Highway/ Street Departments re: erosion problems associated w/ stormwater runoff	City of Hobart, Indiana Lake County Highway Department INDOT	$	City of Hobart, Indiana Lake County Highway Department INDOT	2005

Goal # 2	**Improve water quality in Deep River/ Turkey Creek watersheds - Reduce sediment, nutrient, and E.coli loads in DR/ TC upstream of Lake George by 15% over the next 5 years; Improve in-stream habitat in DR/ TC by 15% over the next 5 years**	**Target Location(s) for Implementation**	**Estimated Cost of Implementation**	**Responsible Party**	**Implementation Schedule**
Strategies for Achieving Goal # 2:	• Digitize Lake County Soil Survey (SSURGO) to provide essential tools for erosion/ sedimentation: 1. Targeting agricultural BMPs to Highly Erodible Lands (HEL) throughout watershed 2. Easily identifying HELs in construction project areas so that ESC plans can be targeted for increased BMPs/ protection via Rule 5 Program	Lake County SWCD	$$$	Lake County SWCD	2003-2007
	• Establish regional stormwater utility. Stormwater utilities are an effective alternative to traditional financing for stormwater management. Stormwater utilities initiate user fees that provide community/ regional financing for stormwater runoff that causes *pollution* and *flooding*.	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana City of Hobart, Indiana	$$$$$$	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana City of Hobart, Indiana	2007

	• Establish regional Stormwater Management Programs that includes authority for managing an erosion sediment control program via ordinance or regulatory program. Program will need to include site plan review procedures, site inspection/ enforcement procedures, and the ability to enforce stop work orders. May also include public input/ community policing components	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	$$$$	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	2007
	• Update local zoning/ subdivision control ordinances to require lake/ stream setbacks; minimize curb requirements near streams to promote over land flow, and require additional (native) landscaping requirements along streams/ lakes in new/ redevelopment	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana Lake County, Indiana	$$$	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana Lake County, Indiana	2004

	• Revise Comprehensive Plans to include recommended principles/ strategies from Deep River/ Turkey Creek Watershed Management Plan as a foundation for long-range planning: 1. Stream/ Lake Setbacks 2. Floodplain Protection/ Management 3. Wetland/ Tree Conservation 4. Minimizing Impervious Surfaces 5. Linear Parks/ Open Space Preservation 6. Greenway and Riparian Planning 7. Parking Lot and Native Landscaping Design 8. Conservation Design 9. Planned Unit Development 10. Infill Development	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana Lake County, Indiana	$$	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana Lake County, Indiana	2007
	• Establish Regional Education Program for Developers: 1. Produce materials to inform the development community about anticipated changes to erosion and sediment control (ESC) requirements. 2. Produce educational materials regarding the importance of erosion/ sediment controls for protecting community investments in Lake George. 3. Produce guidance recommending proven/ recommended best management practices (BMPs) and describing proper installation methods/ design specifications	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	$	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	2003-2007

	• Install regional detention/ BMP demonstration projects as an educational tool for the development community (Phase III Lakefront Development near City Hall), using techniques such as catch basin inserts, retrofitting SW pond for quality controls, constructed wetland, bio-filter, etc)	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	$$$	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	2007

	• Construct streambank/ shoreline bioengineering projects in conjunction w/ LCSO's regional detention projects and retention/ infiltration practices to slow down stream velocities: 1. Deep River @ Deep River County Park – Streambank Stabilization 2. Conduct community surveys to identify additional problem areas in need of restoration	Lake County Surveyor's Office City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana City of Hobart, Indiana Lake County SWCD Lake County Parks	$$$$$	Lake County Surveyor's Office City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana City of Hobart, Indiana Lake County SWCD Lake County Parks	2003-2007
	• Discourage use of turf grasses/ mowing on public and private lakeside parcels. Use native plants/ bushes along shoreline that provide more extensive root structure and protection against erosion/ wave action.	Lake County Surveyor's Office City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana City of Hobart, Indiana	$	Lake County Surveyor's Office City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana City of Hobart, Indiana	2003-2007

	• Support LC SWCD on Ag issues, such as Core 4: 1. Filters/ Buffers, 2. Reduced Tillage/ Conservation tillage 3. Nutrient, Pest, Manure management 4. Fencing livestock out of streams/lake and installation of alternate supplies of water 5. Water/ sediment control basins	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	$$$$	Lake County SWCD	2003-2007

	• Support LC SWCD in storm water inlet stenciling project throughout watershed (Entire Lake George watershed; Deep River/ Turkey Creek watershed)	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	$	Lake County SWCD	2005

	• Encourage partnerships w/ neighboring communities to: 1. Ensure consistency in the development of storm water management programs 2. Promote development of consistent erosion and sediment control ordinances 3. Encourage consistency in BMPs required during construction activities 4. Encourage consistency in education and outreach efforts for all communities in watershed	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	$$	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana Town of Schererville, Indiana Town of Griffith, Indiana City of Gary, Indiana City of Portage, Indiana City of Lake Station, Indiana Lake County, Indiana	2004

Goal # 3:	**Improve education about water quality problems/ concerns - Educate 75% of Lakeshore residents about watershed protection efforts for Lake George over the next 2 years. Educate 75% of community officials in the DR/ TC watersheds about watershed protection efforts for Lake George over the next 2 years**	**Target Location(s) for Implementation**	**Estimated Cost of Implementation**	**Responsible Party**	**Implementation Schedule**
Strategies for Achieving Goal # 3:	• Establish Lake Resident Education Program: 1. Conduct series of lake resident surveys gauging interest and support of lake improvement efforts/ water quality improvements 2. Create brochure and website to educate residents about the benefits of natural shorelines/ native plants and landscapes to prevent shoreline erosion 3. Conduct hands-on workshop to teach easy bioengineering technologies to lake property owners by installing demonstration practice on public property, such as city/ county park	City of Hobart, Indiana Lake County SWCD Lake County Parks Department	$$	City of Hobart, Indiana Lake County SWCD Lake County Parks Department	2004
	• Establish a forum staff from communities within the DR/ TC watershed to consistently discuss watershed specific water quality/ stormwater issues. Use forum to develop "issue papers" regarding topics where multiple communities should coordinate on watershed basis. Each community's representative would present "issue papers" to their Mayor/ Council to raise awareness of issues and promote collaboration. Issue papers and collaborative activities could be presented and discussed regionally at IACT Mayor's Roundtable meetings and at larger scale, regional watershed meetings, such as NIRPC,	Lake County Surveyor's Office City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana City of Hobart, Indiana	$$$	Lake County Surveyor's Office City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana City of Hobart, Indiana	2004-2007

	• Install signage identifying Deep River/ Turkey Creek Watershed boundaries, such as "Now entering the DR/ TC Watershed. Help keep our streams clean!" Also, install signs identifying stream names at bridge crossings to raise awareness and identity of streams feeding into Lake George.	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana City of Hobart, Indiana	$	City of Crown Point, Indiana Town of Winfield, Indiana Town of Merrillville, Indiana City of Hobart, Indiana	2003-22004
	• Partner with Hobart High School to create an elementary education program, focusing on watersheds and water quality, that will prepare students for more extensive education in High School courses, such as "Water Analysis" class.	City of Hobart, Indiana Hobart School System	$	Hobart Elementary School Hobart High School	2003-2007

Goal # 4	**Eliminate illegal discharges - Conduct dry weather screening/ surveys of 100% of MS4 outfalls into Lake George/ tributaries over the next 5 years – Hobart; All Designated SW Phase II Entities. Conduct dry weather screening/ surveys of 25% of outfalls in non-MS4 areas in DR/ TC watersheds over the next 5 years**	**Target Location(s) for Implementation**	**Estimated Cost of Implementation**	**Responsible Party**	**Implementation Schedule**
Strategies for Achieving Goal # 4:	• Map all "named" streams, ditches, and stormwater conveyances within designated MS4 areas.	MS4 Communities/ Designated Areas	$ - $$$$	MS4 Communities/ Designated Entities	2003-2007
	• Establish local illicit discharge ordinance/ program. Program will need to conduct dry weather screening of outfalls discharging to MS4 system. Will require annual staff training and complaint response	MS4 Communities/ Designated Areas	$ - $$$	MS4 Communities/ Designated Entities	2005-2007
	• Establish illicit discharge education program in conjunction with other recommended education endeavors.	MS4 Communities/ Designated Areas	$	MS4 Communities/ Designated Entities	2004-2007
	• Establish partnership with local Scouting, fishing, canoeing clubs, environmental groups or Hoosier RiverWatch volunteers to identify and survey non-MS4 areas outfalls. Develop partnership in conjunction with existing education and outreach recommendations.	City of Hobart, Indiana MS4 communities bordering targeted areas	$	City of Hobart, Indiana MS4 communities bordering targeted areas	2004

Goal # 5	**Eliminate Failing septic systems - Survey 30% of non-sewered areas to identify failing septic systems within municipal jurisdictions over the next 5 years; Implement appropriate community solutions for 10% of problematic septic systems over the next 5 years.**	**Target Location(s) for Implementation**	**Estimated Cost of Implementation**	**Responsible Party**	**Implementation Schedule**
Strategies for Achieving Goal # 5:	• Develop program to identify and track failing septic systems and provide cost share money for sewer connection or alternative treatment. 1. Purchase ArcView software and create GIS to track the operational status of septic systems within the DR/ TC watershed. 2. Conduct review of Health Department records to identify records of failing septic systems around Lake George and tributaries. 3. Use GIS to establish a tiered survey system that prioritizes Lake and stream buffer areas and works progressively outward from waterbodies. 4. Conduct voluntary dye testing of septic systems to identify failing systems/ illicit connections. 5. Work with Lake County SWCD to identify "midnight connections" to field tiles/ ditches.	City of Hobart, Indiana Lake County Health Department	**$$ - $$$**	City of Hobart, Indiana Lake County Health Department	2005-2007
	• If magnitude of failing septic systems considered high after evaluation, conduct an evaluation of management alternatives and funding mechanisms for replacing failed septic systems or connection to sanitary sewer, such as septic management districts, cluster systems, GLNPO, NPS SRF, etc.	City of Hobart, Indiana	$$$	City of Hobart, Indiana	2007
	• Establish partnership with local Scouting, fishing, canoeing clubs, environmental groups or Hoosier RiverWatch volunteers to conduct visual stream assessments. Develop partnership in conjunction with existing education and outreach recommendations.	City of Hobart, Indiana	$	City of Hobart, Indiana	2004

Table 8-3: Milestones and Mechanisms for Measuring Success

Priority	Goal	Milestones/ Mechanisms for Measuring Progress	Estimate Pollutant Load Reduction
# 1:	Minimize the deposition of new sediments into Lake George - Reduce sedimentation in Lake George by 75% over the next 5 years via treatment train principle for both urban/ rural areas	• Milestones: Grant application submitted (Oct 02) for coordination and additional subwatershed planning in Deep River/ Turkey Creek watershed. NPDES Stormwater Quality Management Plan developed and submitted to IDEM by March 2003. Water quality monitoring reports produced by City of Hobart on annual basis, beginning in 2003. Revised Comprehensive Plan completed by end of 2003. Education Brochures sent to all developers working in Hobart by the end of 2003. Semi-annual surveys of stabilization projects to ensure effectiveness/ success. • Measuring Success: Overall progress against goal will be measured based upon reductions observed in sediment loadings from water quality monitoring data; Creation of city stormwater utility; linear feet of shoreline stabilized compared to feet of shoreline severely eroded prior to construction of BMPs; conservation tillage acreage will be compared to 1997 statistics; number of stormwater inlets stenciled; number of brochures distributed to lake/ city residents; number of responses to resident surveys regarding lake quality	
# 2	Improve water quality in Deep River/ Turkey Creek watersheds - Reduce sediment, nutrient, and E.coli loads in DR/ TC upstream of Lake George by 15% over the next 5 years; Improve in-stream habitat in DR/ TC by 15% over the next 5 years	• Milestones: Grant application submitted (Oct 02) for completing digital soil survey. **Creation of stormwater utilities by neighboring cities/ towns;** NPDES Stormwater Quality Management Plans developed and submitted to IDEM by March 2003 for neighboring cities/ towns. Revised Comprehensive Plans completed by end of 2007. Education Brochures sent to all developers working in Deep River/ Turkey Creek watershed by the end of 2007. Semi-annual surveys of stabilization projects to ensure effectiveness/ success. • Measuring Success: Overall progress against goal will be measured based upon reductions observed in sediment loadings from water quality monitoring data; linear feet of shoreline stabilized compared to feet of shoreline severely eroded prior to construction of BMPs; conservation tillage acreage will be compared to 1997 statistics; number of stormwater inlets stenciled.	

# 3	**Improve education about water quality problems/ concerns - Educate 75% of Lakeshore residents about watershed protection efforts for Lake George over the next 2 years. Educate 75% of community officials in the DR/ TC watersheds about watershed protection efforts for Lake George over the next 2 years**	• Milestones: Grant application submitted (Oct 02) for developing educational programs. **Creation of regional watershed coordination organization. Installation of "you're your watershed" signs at all major road crossings in watershed.** • Measuring Success: Number of brochures distributed to lake/ city residents; number of responses to resident surveys regarding water quality; establishment of an elementary school curriculum focusing on watersheds and water quality.
# 4	**Eliminate illegal discharges - Conduct dry weather screening/ surveys of 100% of MS4 outfalls into Lake George/ tributaries over the next 5 years – Hobart; All Designated SW Phase II Entities. Conduct dry weather screening/ surveys of 25% of outfalls in non-MS4 areas in DR/ TC watersheds over the next 5 years**	• Milestones: 25% of MS$ area mapped each year begging 2004; revison of nuisance ordinance to address illicit connections; visual surveys of major streams/ tributaries. • Measuring Success: Number of illicit connections eliminated; number of stream miles surveyed; number of participants in stream surveys
# 5	**Eliminate Failing septic systems - Survey 30% of non-sewered areas to identify failing septic systems within municipal jurisdictions over the next 5 years; Implement appropriate community solutions for 10% of problematic septic systems over the next 5 years.**	• Milestones: create GIS system w/ ability to track/ maintain records regarding failing septic systems. Review County Health department records on failing septic systems from past three years; Establish teams to survey streams/ tributaries. • Measuring Success: Number of failing septic systems identified; number of failing septic systems eliminated; number of stream miles surveyed; number of participants in stream surveys
#6	**Promote consistency among communities developing stormwater management programs -** Develop joint stormwater/ water quality education programs w/ communities in DR/ TC watershed over the next 5 years. Develop consistent stormwater ordinances w/ communities in DR/ TC watershed over the next 5 years	• Milestones: Establish regional watershed coordination organization; hold quarterly coordination meetings w/ city/ town officials in Deep River/ Turkey Creek watershed • Measuring Success: Number of meetings regional coordination meetings held annually; number of participants in attendance.